ARIA Technologies

How to respond to air quality pressure associated with electric vehicles?

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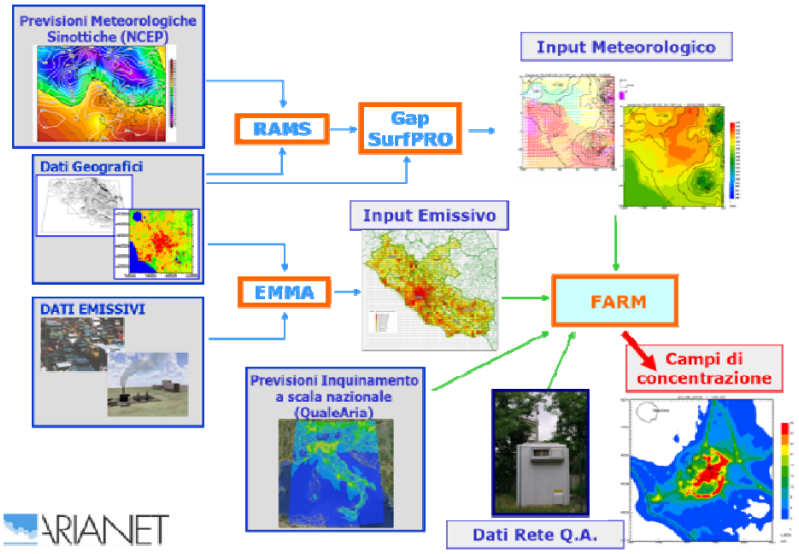
Air pollution in winter in FR and CN

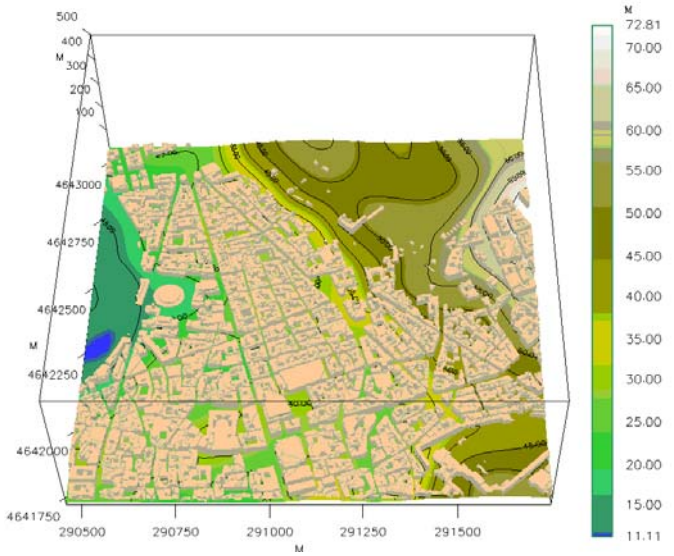
How about introduction of VE?

Assessing the air quality in Roma and Hong Kong under direct influence of the traffic and to get a fine mapping of the pollution levels for scenarios:

1. **Present**
2. **After introduction of % EV of**

At regional and local scale by using state-of-the-art numerical tools: CHIMERE+FARM+MSS





Roma

WHY ELECTRIC VEHICLE ?

IS ONE OF THE ANSWER TO ENVIRONMENTAL ISSUES

ROMA CAPITALE

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RENAULT

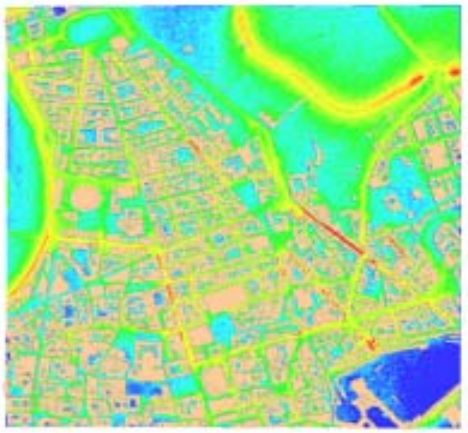
MODELISATION ON THE SMALL URBAN ROMA AREA :

- AREA with limited traffic: ~25% EV (VP, 2 roues et VUL)

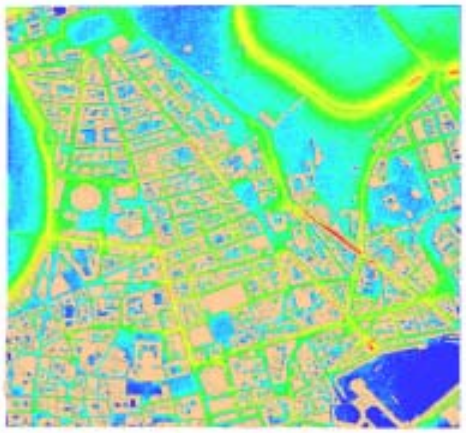
➔ major drivers are EV public fleets and EV last mile good delivery

Up to 22% ($PM_{2,5}$) and 38% (benzene) reduction **on the road network**

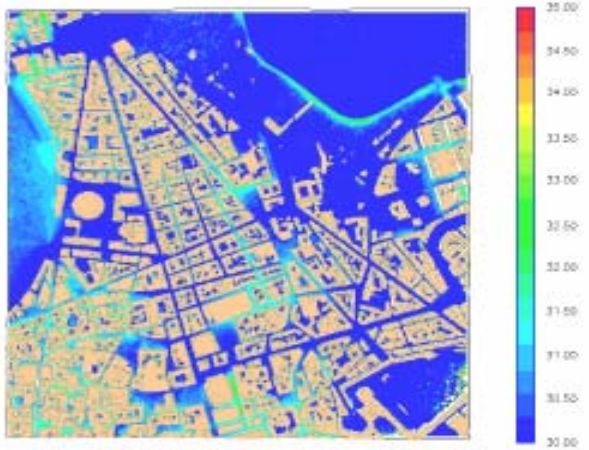
PM_{10}: Basis case
Maximum concentrations (µg/m3)



PM_{10}:volontarist scenario
Maximum concentrations (µg/m3)



PM_{10}: volontarist scenario
concentrations variation(%)



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DRIVE THE CHANGE

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Roma

WHY ELECTRIC VEHICLE ?

IS AN ANSWER TO ENVIRONMENTAL ISSUES

ROMA CAPITALE

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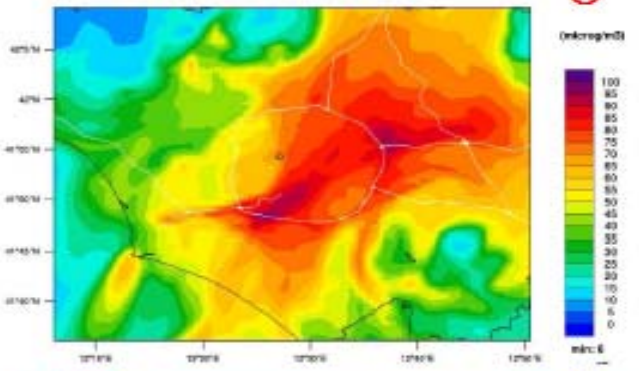
MODELISATION ON THE LARGE URBAN ROMA AREA :

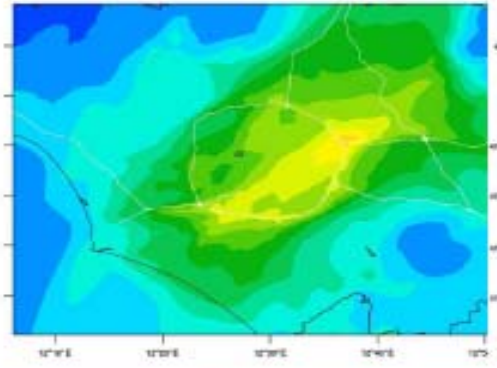
- AREA with limited traffic: ~25% EV (VP, 2 roues et VUL)
- Rest of the area : ~ 10% (VP et VUL)

From 10 up to 25% NO_2 reduction (min daily value)

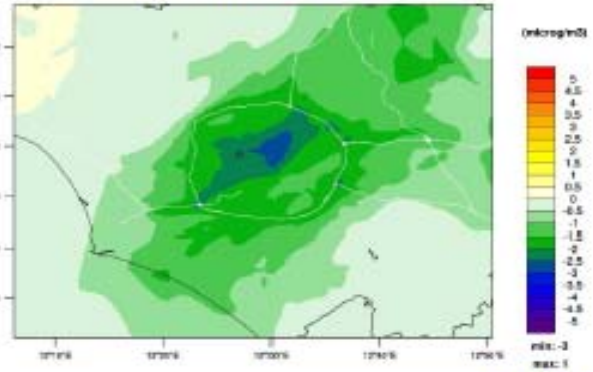
Base case:
Absolute concentration
maximum day 1 (µg/m3)



Base case:
Absolute concentration
Daily average (µg/m3)



Volontary scenario:
Concentration variation
Daily average (µg/m3)



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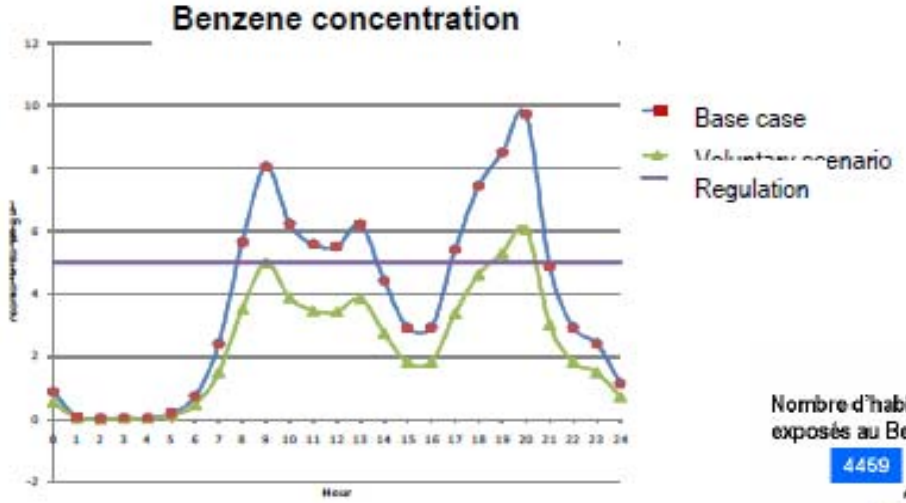
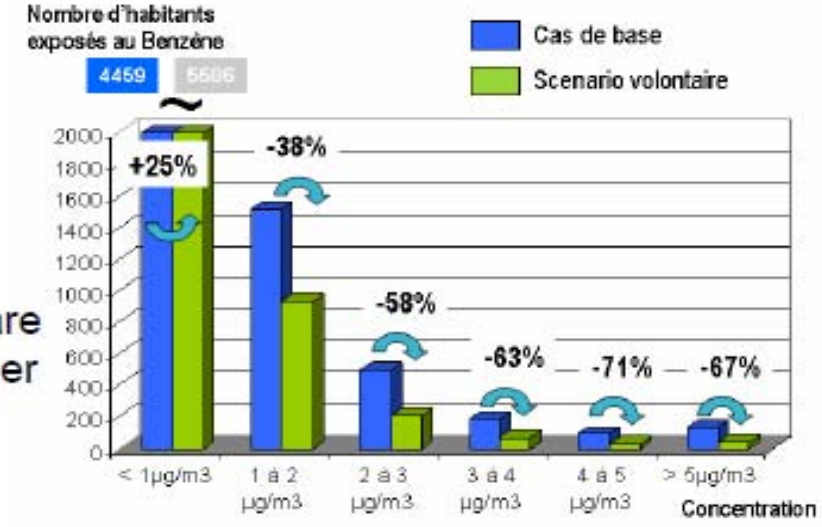
Promote EV: is one of the very efficient measures to reduce population exposure





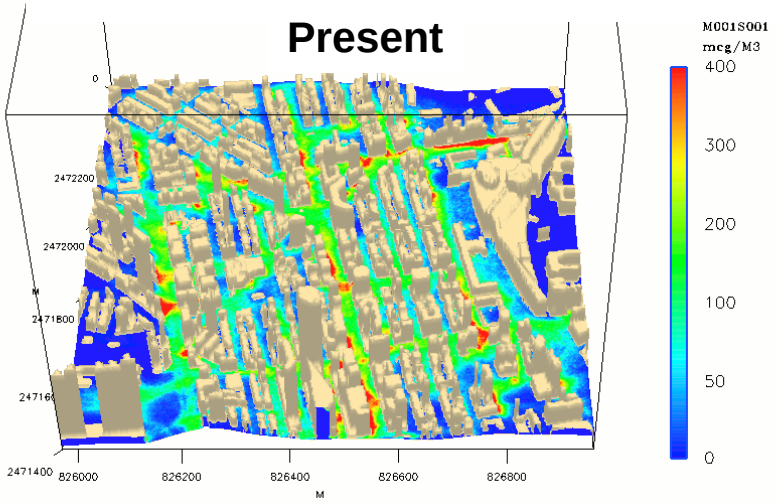
- 47% of the population exposed (inhabitants) + 43% of the tourists are preserved from concentrations higher than 2 µg/m3

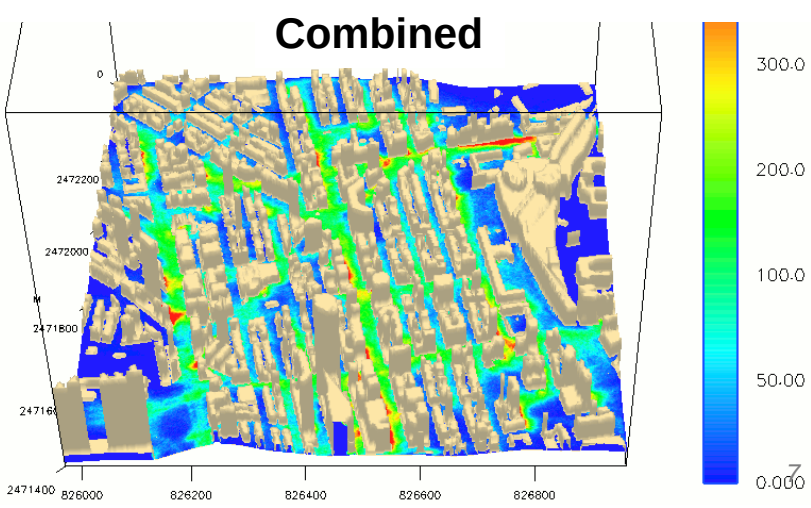
Hong Kong

- Mongkok (micro level – 1 x 1 km area in, **3m's resolution**) of project

- Three scenarios has different solutions to improve the air quality – the pollutants are differently impacted according to the scenarios
  - 20% passenger vehicles replaced by EV - Reduces VOC and CO (Maximum VOC reduction by 47%)
  - 20% LCV and minibuses replaced by EV - Reduces PM10 and PM2.5 (PM are the most reduced by 20%)
  - 20% current LPG taxis replaced by bi-fuel LPG - Reduces NOx and NO2 (NOx emissions are the most reduced by 11%)

  - As expected, the combined with the best on the air quality – daily average concentration of VOC and NO2 **by 45% and 17%.**

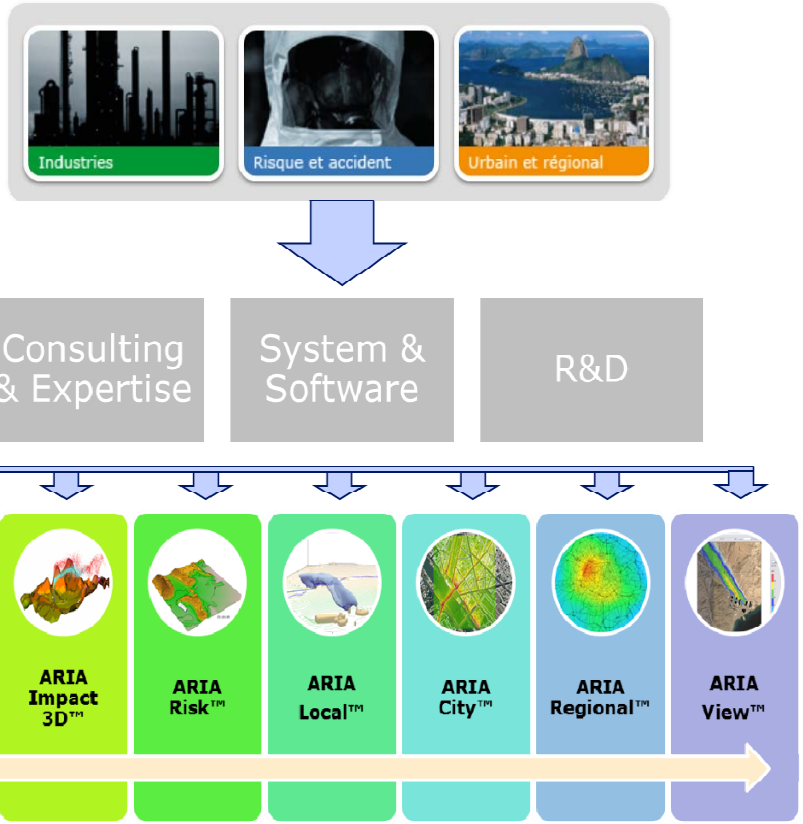




ARIA Technologies

ARIA Technologies SA, Founded in 1990, provide software and services in the filed of atmospheric environment

- **Headquarter in Boulogne-Billancourt, the Greater Paris region**
- **Offices in Grenoble, Toulouse, Brest, Mexico**
- **Subsidiary company in Milan (Italy) since 2000: ARIANET**
- **Subsidiary company in Turin (Italy) since 2010: SIMULARIA**
- **Subsidiary company in Rio (Brazil) since 2010 : ARIA do Brazil**

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La vie, avec passion
Etude de l'introduction massive
de véhicules électriques à Rome
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